

The Risk of Absenteeism among Workers with Psoriasis

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Abstract

Background: Psoriasis is a chronic, painful, destructive, and disabling disease that has no cure, with a large negative impact on a patient's quality of life. Sick leave is one of common challenges for people with psoriasis.

Aim: To know the absenteeism risk of workers with psoriasis.

Method: A literature search using search engine PubMed and Google Scholar was conducted. The inclusion criteria are systematic review, cohort, or case control studies; the subjects of studies are workers; the indicator listed in the title is psoriasis that is not differentiated in any form or type of psoriasis; and the outcome is absenteeism and its synonyms. The exclusion criteria are the articles not written in English, full text is not available, the articles have been used in the recent systematic review, the subjects are blue collar worker or non-office worker, and not relevant according to PICO. Critical appraisal was conducted using standard validity criteria for etiologic/harm/risk studies.

Result: A retrospective matched case control analysis was selected with the level of evidence 3b -. Psoriasis patients were significantly more likely than controls to skip working hours (OR = 1.37; 95% CI 1.00 - 1.89; p <0.05) and days (OR = 1.21; 95% CI 0.72 - 2.05) at the previous week due to health reasons.

Conclusion: Psoriasis increases the risk of sick leave/absenteeism due to illness than those without psoriasis.

Keyword: occupational, psoriasis, work productivity, absenteeism, sick leave, sickness absence

Abstrak

Latar belakang: Psoriasis adalah penyakit kronis, menyakitkan, merusak, dan melumpuhkan yang tidak ada obatnya, dengan dampak negatif yang besar pada kualitas hidup pasien. Ketidakhadiran karena sakit adalah salah satu tantangan umum bagi orang-orang dengan psoriasis.

Tujuan: Untuk mengetahui risiko absenteeism pada pekerja dengan psoriasis.

Metode: Dilakukan pencarian literatur menggunakan mesin pencari PubMed dan Google Scholar. Kriteria inklusi adalah desain systematic review, cohort, atau case control; subyek penelitian adalah pekerja; indikator yang tercantum dalam judul adalah psoriasis yang tidak dibedakan dalam bentuk atau jenis psoriasis apa pun; serta luaran adalah absenteeism dan sinonimnya. Kriteria eksklusi adalah artikel ditulis tidak dalam bahasa Inggris, teks lengkap tidak tersedia, artikel telah digunakan dalam systematic review terbaru, subyeknya adalah pekerja kasar atau pekerja non-kantor, dan tidak relevan menurut PICO. Telaah kritis dilakukan menggunakan kriteria validitas standar untuk studi etiologi/bahaya/risiko.

Hasil: Terpilih 1 artikel retrospective matched case control analysis dengan tingkat kekuatan bukti 3b -. Pasien psoriasis secara signifikan lebih mungkin daripada kontrol untuk melewatkan jam kerja (OR = 1.37; 95% CI 1.00-1.89; p <0,05) dan hari (OR = 1.21; 95% CI 0.72 – 2.05) pada minggu sebelumnya karena alasan kesehatan.

Kesimpulan: Psoriasis meningkatkan risiko cuti sakit/absen karena penyakit daripada mereka yang tidak psoriasis.

Kata kunci: occupational, psoriasis, work productivity, absenteeism, sick leave, sickness absence

Introduction

Psoriasis is a chronic disease, easily relapse, non-infectious, painful, destructive, and cripple for which there is no cure, with a large and significant negative impact on a patient's quality of life.^{1,2,3,4,5} The cause of psoriasis is still unclear, although there is evidence of genetic predisposing factor. Although it is suspected that psoriasis may be an autoimmune disease, the responsible autoantigen cannot be determined yet. Psoriasis can also be triggered by external and internal triggers, including minor trauma, sunburn, infection, and stress. At work, psoriasis can be triggered or exacerbated by mechanical or other physical effects on unprotected body. In patients who claim occupational hand dermatitis, psoriasis is found to be the cause of the disease in 3.8% - 6.5% of cases. Specific gloves and other personal protective equipment can reduce the lesion and allow the person to continue working, which if not used can be dangerous. Other factors that can trigger psoriasis are alcohol consumption, smoking, certain medications, and metabolic disorders.^{1,5}

Psoriasis mainly affects the skin but may also involve nails and joints, and is associated with a number of comorbidities. Skin lesions can be localized or spread, mostly symmetrical, demarcated, papules and red plaques, and usually covered by white or silver crust, accompanied with the wax droplets phenomenon, Auspitz signs, and the Kobner phenomenon. Lesions cause itching, stinging, and pain. About 1.3% - 34.7% of individuals with psoriasis develop chronic inflammation arthritis (psoriatic arthritis) which causes joint deformities and disabilities.^{1,3,5} Individuals with psoriasis are reported to have an increased risk of developing other serious clinical conditions such as cardiovascular and other non-communicable diseases (NCD).¹

Skin diseases like psoriasis can greatly affect a patient's self-image, self-esteem, and comfort. A literature reports psychological effects at work due to psoriasis among those aged 18-34 years and 35-54 years, respectively 18% and 17%. In addition, patients with more severe psoriasis tend to need more time for treatment, which eventually can have an impact on their work status.² Psoriasis also negatively affects work ability because it limits physical activity. Parallel with an increase in disease severity, performance inability will develop significantly in sufferers. This problem can

be greater in patients with psoriatic arthritis and joint symptoms. Sick leave is an undesirable consequence of work dysfunction. Sick leave can ruin productivity and cause feelings of frustration and fear of losing work.⁴ Some studies reveal that workers with severe psoriasis lose an average of 2.3 - 26 working days over a 12-months period.² According to the American National Psoriasis Association, each year 56 million working hours is lost by patients with psoriasis. This sick leave is a complex situation and has multifactorial causes and many of these factors can be controlled and prevented.⁴ Due to the negative impact on work productivity, impractical costs, and disruptions to the quality of production, sick leave from the workplace has attracted more attention in recent years and has become an important problem in society. Therefore, this article's aim to know the absenteeism risk of workers with psoriasis.

Case Description

Mrs. SY, 34 years old, came to the Dermato and Venereology clinic of Cipto Mangunkusumo Hospital (RSCM) for control after emergency treatment 3 days ago because of vomiting more than 10 times after taking the methotrexate (MTX) test dose 3 days before entering the emergency room. The patient was treated in the emergency room for 1 day to improve her general condition.

At the time of control, the patient appeared to be moderately ill, blood pressure 110/60 mmHg, pulse rate 92 beats/minute, body temperature 37.8 °C, respiratory rate 22 times/minute. Complaint of nausea were still present and decreased appetite. One day before clinic visit, new patches still appeared on both arms up to the patient's palm. The patches felt sore and itchy. There were complaints of fever to shiver since 1 day before. On physical examination, the dermatological status of the universal region was found to have multiple erythematous plaques. The plaques were circumscribed discrete confluent with multiple discrete confluent pustules and rough dry white scales. Body surface area (BSA) was 99%. Hematology laboratory examination obtained 9.8 g/dL of haemoglobin, leukocytes 22690/ μ L, and 128 of blood sedimentation rate (BSR). Urinalysis examination obtained albumin +1 and ketone +2. Result of chemical blood examination were SGOT 12 U/L, SGPT 7 U/L, blood creatinine 0.7 mg/ dL,

eGFR 113.4 ml/min /1.73 m², blood urea 12 mg/dL, and ASTO 213 IU/dL.

Patient was suffering from generalized psoriasis pustulosa since 2012 who had experienced recurrence several times until hospitalized. The first lesions appeared 2 months after having baby on 2011 as pus on the red and itchy skin on the abdomen and thighs. Psoriasis was diagnosed 6 months later and was treated with acitretin 1 x 50 mg. Previous history of psoriasis, vaginal discharge, drug allergies, and food allergies were denied. Patient had a history of dental cavities that had been removed. None of the patient’s family had a history of this disease. The history of the disease can be seen on table 1.

In the last relapse, because acitretin was not available and the patient did not get improvement after 7 months of cyclosporine treatment, even with the maximum dose of 2 x 200 mgs, the patient then was planned MTX administration, which began with a test dose of 5 mg/week, approximately 1 week before the last control. After MTX administration, the patient started vomit, more often, until finally must be sent to the emergency unit.

The patient works as an administrative officer at a foreign capital-owned importing company since 2008. Her tasks are conditions checking, inventorying, and recording incoming luggage. She works every weekday, and additional Saturday 2 times a month, from 8:30 a.m. to 5:00 p.m. Patient almost never work overtime. Every day, she departs and leaves work to be picked up by her husband/father on a motorcycle. Workload is felt fair by the patient. She can still do stretching activities or chatting with colleagues in the office between leisure or break time. There is no conflict with superiors or co-workers. But since the patient has psoriasis, she often not come to work because of her condition, for medical

control, or for therapy. She can absent for 2 - 3 weeks, so she gets a warning letter from her office. Before 2008, she worked at the same field as her current work, with quite the same workload and work environment.

During treatment, relapses, and during medical control, patient often absent from work (sick leave, absenteeism). The absence associated with her illness sometimes reaches several days to several weeks. For this reason, it is necessary to know the risk of absenteeism in workers with psoriasis, and the clinical question for finding relevant literature is **“What is the risk of absenteeism in workers with psoriasis?”**

The patient or population (P) of workers must be established because absenteeism can occur in populations other than workers. The indicator (I) was “psoriasis” as a general psoriasis that does not distinguish between types of psoriasis, such as plaque psoriasis (psoriasis vulgaris), pustular psoriasis, guttate psoriasis, psoriatic arthritis, etc. The control (C) was “non-psoriatic”. Absenteeism and its synonyms are determined as outcome (O) of predetermined indicator.

- PICO in finding literature, namely:
- P : White collar worker/employee/worker
 - I : Psoriasis
 - C : Non-psoriasis
 - O : Absenteeism/sick leave/sick absence

Methods

The literature search was performed to answer clinical question using search engines PubMed and Google Scholar. The keywords used were “psoriasis” AND “work productivity”. The keyword “work productivity” represents productivity among workers, which includes

Table 1. Disease history of the case

Year	< 2008	2008	2010	2011	2012	2012-2015	2015	2016-2018	2018
History	Working in the same field of the current job for several years	Start working in the current job	Married	Having baby, first plaque begun to appear	Diagnosed as psoriasis, acitretin therapy	Recurrence several times, accompanied by joint pain in the hands and feet, hospitalized	New lesions widespread, with sign of infection, hospitalized	Remission (2 years)	Relapse, no improvement after 7 months of cyclosporine, planned for MTX

assessing the risk of absenteeism/sick leave/sick absence.

The inclusion criteria are systematic review of etiologic studies, cohort, or case control studies; the subjects of studies are workers or employees (white collar worker/employee/ worker); the research indicator listed in the title is the diagnosis of generalized psoriasis in any morphological form; and the outcome of the studies is absenteeism and its synonyms. The exclusion criteria are the articles

not written in English; full text is not available; cohort or case control studies have been used in recent systematic review; blue collar worker or non-office worker; not relevant according to PICO.

The article search results can be seen in table 2, while the article search flow using inclusion and exclusion criteria can be seen in figure 1.

The selected article is then critically appraised to determine whether the article is valid, important, and

Table 2. Searching strategy using database from PubMed, and Google Scholar

Database	Search Strategy	Hit	Selection
Pubmed	psoriasis AND “work productivity” AND (“systematic review” or cohort or “case control”) NOT “psoriatic arthritis” Sort by: Best Match	12	1
Google Scholar	psoriasis “work productivity” absenteeism “systematic review” OR cohort OR “case control” -”psoriatic arthritis” -”rheumatoid arthritis”	269	1 (duplicate)
TOTAL			1 article

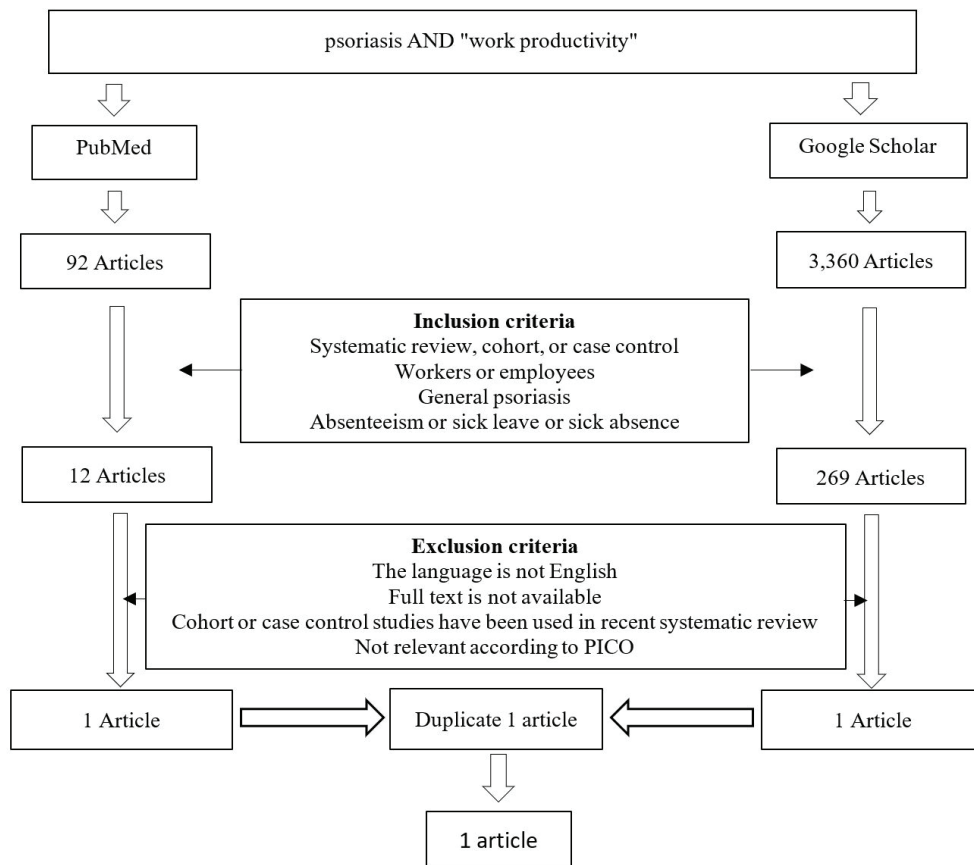


Figure 1. Literature searching chart

applicable to the patient using standard validity criteria for etiologic/harm/risk studies by the Oxford Centre for Evidence-based Medicine.

Result

From the online search results, a matched case control analysis by Wu, et.al (2009)² is selected that matches the inclusion and exclusion criteria. The critical appraisal result can be seen in table 3.

Wu, et al. conducted a retrospective matched case control study from the National Health and Wellness Survey (NHWS) data in the United States, between May 1st and June 30th, 2004 to determine the impact

of psoriasis on work and productivity. Of the total 40,730 adult people who completed the NHWS survey, 1,127 people with psoriasis were further analyzed regarding the relationship of psoriasis with decreased work productivity. Group of respondents without psoriasis were randomly selected and matched based on age, sex, region, and race. This group was used to assess whether psoriasis had a negative impact on work and productivity as measured by the WPAI (Work Productivity and Activity Impairment) questionnaire. Of the 1,127 patients who reported having psoriasis, 629 were workers at the time of the survey, as was the corresponding control group.

The National Health and Wellness Survey (NHWS) is an annual, comprehensive, nationwide study of

Table 3. Critical appraisal of etiologic/harm/risk study

STUDY	Wu Y, et.al. (2009)
VALID (Are the results of this harm study valid?)	
Were there clearly defined groups of patients, similar in all important ways other than exposure to the treatment or other cause?	Yes. The patients group is people with psoriasis in various types and severity.
Were treatments/exposures and clinical outcomes measured in the same ways in both groups (was the assessment of outcomes either objective or blinded to exposure)?	Yes
Was the follow-up of study patients sufficiently long and complete?	Not followed up (case control)
Do the results satisfy some “diagnostic tests for causation”?	
- Is it clear that the exposure preceded the onset of the outcome?	Yes. The average length of diagnosis of psoriasis is 14.9 years. Work productivity was assessed based on the past 1 week.
- Is there a dose-response gradient?	No
- Is there positive evidence from a “de-challenge-re-challenge” study?	No
- Is the association consistent from study to study?	The consistency of the association between studies cannot be assessed due to the limited number of studies.
- Does the association make biological sense?	Yes
IMPORTANT (Are the valid results from this harm study important?)	
OR (case control) : a.d / c.b	OR 1.37 95% CI 1.00 – 1.89 p-value < 0.05
APPLICABLE (Should these valid, potentially important results change the treatment of your patient?)	
Do the results apply to our patient?	Yes
What are our patient’s risks of the adverse event?	PEER = 1% NNH = 274.01
NNH = {PEER(OR-1) +1} / {PEER(OR-1) x (1-PEER)}	
What are our patient’s preferences, concerns, and expectations from this treatment?	Know the risk of absenteeism in people with psoriasis and how to prevent worsening of the condition
What alternative treatments are available?	Counseling

attitudes and behaviour related to health care in the US, supported by Consumer Health Sciences (Princeton, NJ, USA). The survey is stratified according to age, sex, race, and education. A broad range of health-related questions were asked, including quality of life measured by the 8-item Short Form health survey (SF-8), self-reported co-morbidities, and work and productivity as measured by the WPAI questionnaire. Patients were also asked if they had psoriasis and asked to self-assess the severity of their disease based on the percentage of involved body surface area.

The Work Productivity and Activity Impairment (WPAI) instrument is incorporated into the NHWS to assess employment and work productivity. WPAI has been used in various areas of the disease and its validity and reproducibility have been established. Briefly, the questionnaire first identifies employed subjects (full-time, part-time, etc.) and asks the following five questions about the last 7 days: (i) the number of hours the respondent was absent from work due to health-related problems; (ii) the number of hours absent from work for other reasons; (iii) the number of hours the respondent actually worked; (iv) the extent to which health problems affected the respondent's productivity while at work; and (v) the extent to which health problems affected the respondent's ability to do regular daily activity outside of work.

Psoriasis patients were significantly more likely than controls to skip working hours (OR = 1.37; 95% CI 1.00 - 1.89; $p < 0.05$) and days (OR = 1.21; 95% CI 0.72 - 2.05) at the previous week due to health reasons. At work, patients with psoriasis reported more significant decreases in productivity due to health compared to appropriate controls (OR = 1.66; 95% CI 1.28 - 2.18; $p < 0.001$). The incidence of overall work disruption (lost work time and productivity; OR = 1.62, 95% CI 1.25 - 2.11; $p < 0.001$) and disruption of non-work activities (OR = 1.59; 95% CI 1.25 - 2.03; $p < 0.001$) significantly greater in patients with psoriasis compared with appropriate controls.

Discussion

From the evidence, psoriasis patients were significantly more likely to skip working hours and days, reaching 1.37 times more likely to be absent due to illness than those without psoriasis. Work productivity was assessed using WPAI questionnaire on 629 respondents with

psoriasis and the same amount of matched controls.

By using the online database search engine with predetermined keywords and applying the inclusion and exclusion criteria, one case control study is obtained to answer clinical question: What is the risk of absenteeism in workers with psoriasis. The best literature that can explain the risk of absenteeism in workers with psoriasis is a cohort design study, in which exposure can be seen to precede impact, so that a causal relationship is clearly seen. However, literature with a case control research design can still be used with lower strength.⁶

In the selected article, a retrospective matched case control analysis, the group of patient was clearly defined, and exposure and clinical outcome were measured in the same way in both groups. Follow up was not conducted, since it was a case control study. It is clear that the exposure preceded the onset, based on 14.9 years of average length of diagnosis of psoriasis and work productivity was assessed in the past 1 week. The consistency of the association between studies cannot be assessed due to the limited number of studies.

In this study, there were no data on risk factors affecting the increased risk of absenteeism in workers with psoriasis. In the discussion of this study, Wu, et.al.² explained that physical symptoms of psoriatic skin lesions, such as mild to intense itching, 'skin shedding,' skin tightness, redness, dryness, and bleeding, can significantly impact physical functioning, disease perception, and quality of life. The negative impact on patient's quality of life, comparable to that observed in patients with cancer, arthritis, hypertension, heart disease, diabetes mellitus, and depression. Patients with more severe pruritus have higher levels of psoriasis-related stress than other patients with psoriasis and a direct correlation has been found between depressive psychopathology and pruritus severity. The intensity of pain and burning sensations may render a patient immobile. There is the possibility of comorbidity (for example cardiovascular risk), which is prevalent in patients with psoriasis, can also contribute to the loss of work productivity. Additionally, the cost of care incurred by psoriasis patients increases with disease severity, and these financial burdens are associated with lower quality of life in these patients.

As a chronic disease that easily relapse, causes pain and damage with the unclear etiologic yet, psoriasis can affect everyone in a variety of severity. Some external and internal factors, such as physical/mechanical or chemical exposure, infection, and stress can trigger the appearance

of psoriasis.^{1,5} In workers with psoriasis, the condition of the disease can affect their work productivity, of which absenteeism is one of its component.

In the case of Mrs. SY, 34 years old, who has suffered from generalized psoriasis pustulosa since 2012, triggers may not be obtained from the workplace. From the disease history (table 1), we can see the patient has worked at the current workplace for about 3 years and feels comfort with her duties, including its workload and work environment. Previously, patient worked in the same field as her current job in another office with quite the same workload and work environment. First plaque begun to appear 2 months after giving birth, which could be suspected as the trigger of the emergence of the first plaque psoriasis. However, information about what happened outside the workplace, including at home and matters relating to her child and the care of infant is less explored.

In some people, having and caring for children puts special pressure, especially on firsts. A term 'baby blue' is known for this situation, which can be temporary or prolonged, depend on the nature of the person, the ability to overcome problems, and the support of the surrounding people. Uncontrolled situations can cause recurrence and worsening of psoriasis. The worsening of the disease, adding to the burden on the initial pressure. Physical symptoms of psoriatic skin lesions, such as mild to intense itching, 'skin shedding,' skin tightness, redness, dryness, and bleeding, can significantly impact physical functioning, and worsening work performance. In the severe psoriasis, joints and nails can also be involved. Sick leave for not being able to work or need time for treatment and therapy, worsening work performance as well. The worse work performance can affect and worsen the conditions of the disease. This condition is like a spinning circle that gets worse.

However, the severity of psoriasis is not the only cause of absenteeism. Workers with psoriasis, where pustule/plaque psoriasis appears on the face or other visible body parts may feel uncomfortable working or meeting with clients.

Because psoriasis increases the risk of absenteeism, both due to the severity or location of the pustules/plaques, the handling of psoriasis workers focuses on preventing relapse and adequate treatment. It is necessary to explore and overcome various factors that might trigger a recurrence, both at work and outside the workplace. These factors, including physical/mechanical and chemical exposure, as well as psychosocial factors.

Workers with psoriasis need to be notified of the initial symptoms of recurrence in order to immediately seek help and treatment before it becomes severe.

Conclusion

Psoriasis increased the risk of sick leave/absenteeism due to illness than those without psoriasis. There are no data on the risk factors affecting the increased risk of absenteeism in workers with psoriasis. However, it is suspected that the severity of psoriasis is not the only cause of absenteeism, but it is also caused by the area of abnormality affected. Because psoriasis increases the risk of absenteeism, the handling of psoriasis workers focuses on preventing relapse and give adequate treatment.

Recommendation

Psoriasis patients should be given an adequate treatment and be referred to experts if needed. Psoriasis workers should be explained on how to notice the initial symptoms of recurrences in order to immediately seek help and treatment before it becomes severe. The clinician should explore and overcome various factors that might trigger psoriasis recurrences and worsening, both at work and outside the workplace. If the triggers are come from workplace exposures, the company should be explained that the workers must be protected against psoriasis workplace triggers by using specific personal protective equipment or moved to another task that is not exposed to the psoriasis triggers.

More studies about the risk of absenteeism in patients with psoriasis must be done using design that can better describe the causal relationship of psoriasis to the incidence of absenteeism among workers, as well as further investigation of the risk factors for the incidence of absence due to psoriasis among workers.

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